



UNITED STATES PATENT AND TRADEMARK OFFICE

A

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,604	12/30/2003	David C. Hustvedt	Acoustiflo-Diffuser-US-No	2188
33549	7590	04/13/2005		
SANTANGELO LAW OFFICES, P.C. 125 SOUTH HOWES, THIRD FLOOR FORT COLLINS, CO 80521			EXAMINER EDGAR, RICHARD A	
			ART UNIT 3745	PAPER NUMBER

DATE MAILED: 04/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/750,604

Applicant(s)

HUSTVEDT ET AL.

Examiner

Richard Edgar

Art Unit

3745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12/30/2003 under 37 C.F.R. § 1.53(b).
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21, 42-70, 98-127, 154-165 and 176-178 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-21, 42-70, 98-127, 154-165 and 176-178 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 30 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/30/2003.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "diffuser outlet area and the diffuser inlet area are approximately equal" (claims 3, 44) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is

Art Unit: 3745

requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

Claims 54, and 158 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claims 42 and 154 each requires a centrifugal fan.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 3,6,42,66,118,119,120,155 and164 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 3,118,120 and164 each require the inlet and outlet areas to be equal, but claim 1 seems to suggest, although not definite, a converging geometry. One cannot have a converging geometry together with equal inlet and outlet areas.

Claims 6,66,119 and155 each appear to have violated the conservation of mass law by requiring a zero velocity of the pumped air.

Art Unit: 3745

Claim 42 requires the transformation of tangential velocity pressure to static pressure, but does not enable one having ordinary skill in the art to make the invention since the claim also requires the fluid to be axially converged, thereby increase the velocity of the fluid.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-21,48,50,57,58,59,61,62,63, 98-127,156 and162 are rejected as failing to define the invention in the manner required by 35 U.S.C. 112, second paragraph.

The claim(s) are narrative in form and replete with indefinite and functional or operational language. The structure which goes to make up the device must be clearly and positively specified. The structure must be organized and correlated in such a manner as to present a complete operative device. The claim(s) must be in one sentence form only. Note the format of the claims in the patent(s) cited.

The term "sufficiently" in claim 1 is a relative term which renders the claim indefinite. The term "sufficiently controlled" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim 1 recites "a problem". One cannot determine what constitutes a problem and what does not constitute a problem. Therefore, applicant has not pointed out what a problem is, as written in claim 1.

The term "smoothly" in claims 2, 48, 117 and 156 is a relative term which renders the claim indefinite. The term "smoothly" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claims 4, 50, 124 and 162 each recites the broad recitation "at least 70%", and each claim also recites "at least 80%" which is the narrower statement of the range/limitation, and still yet each claim recites "at least 85%", which is the most narrow of the range/limitation.

The term "optimally" in claim 57 is a relative term which renders the claim indefinite. The term "optimally" is not defined by the claim, the specification does not

Art Unit: 3745

provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claims 58,59,61,62 and 100 each recites "recirculation related problems". One cannot determine what constitutes a problem and what does not constitute a problem. Therefore, applicant has not pointed out what a problem is, as written in claims 58, 59,61,62 and 100.

Claims 98 and 99 each recites "problems related to recirculation". One cannot determine what constitutes a problem and what does not constitute a problem. Therefore, applicant has not pointed out what a problem is, as written in claims 98 and 99.

Claim 107 recites the limitation "said step of establishing acoustical material" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-10,13-16, 18, 20, 42-52, 54-55, 57-66, 69, 98-105, 107-109,111-120, 122, 124-126, 154-164 and 176-177, as far as they are enabled and definite, are rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent No. 5,143,514 (Adachi hereinafter).

Adachi teach a diffuser for a relatively high speed fan having a vaneless annular diffuser (see Fig. 2) which increases the static pressure (see Fig. 3). The diffuser is adjustable (see Fig. 4). The diffuser is in fluid communication with a scroll or plenum 4 through a continuous turning geometry of the diffuser.

Claims 1-6, 9-11, 13-16, 18-19, 42-44, 47-55, 57-66, 68-69, 98-101, 104-109, 111-120, 122-126 and 154-164, as far as they are definite and enabled, are rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent No. 2,987,983 (Solzman hereinafter).

Solzman teach a centrifugal fan having a diffuser wherein fan parts are made of a sound (acoustic) absorbing material.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12, 56 and 110 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent No. 5,143,514 (Adachi hereinafter) as applied to claims 1, 55, 109, respectively above, and further in view of a design choice.

The Adachi reference shows a centrifugal fan but does not recite that the static pressure is increased less than 30 inches of water.

At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to vary the fan speed to limit the static pressure to 30 inches of water because applicant has not disclosed that a maximum 30 inches of water provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Adachi's fan, and applicant's invention to perform equally well with either the limited pressure rise or an unlimited pressure rise because both increases in pressure perform the same function of converting rotational movement into fluid energy.

Therefore, it would have been prima facie obvious to modify Adachi to obtain the invention as specified in claims 12, 56 and 110 because such a limit on pressure rise would have been considered a mere design consideration which fails to patentably distinguish over the prior art of Adachi.

Claims 21,70, 127,165 and 178 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent No. 5,143,514 (Adachi hereinafter) as applied to claims 1, 42 and 98 respectively above, and further in view of United States Patent No. 3,140,042 (Fujii hereinafter).

Adachi discloses a centrifugal fan but does not require the blades to be forward curved.

Fujii disclose a centrifugal fan having forward-curved vanes for the purpose of increasing the efficiency and lessening the noise of the fan.

Since Adachi and Fujii are both centrifugal fans, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the blades of Adachi to be forward-curved, as taught by Fujii for the purpose of increasing the efficiency and lessening the noise of the fan.

Cited Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

United States Patent No. 2,836,347 (Barr et al. hereinafter) shows a converging diffuser for a centrifugal impeller (see Figs. 1-6, 10 and 11).

United States Patent No. 2,053,393 (Clarkson) teaches a centrifugal fan having a converging nozzle.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Edgar whose telephone number is (571) 272-4816. The examiner can normally be reached on Mon.-Thur. and alternate Fri., 7 am- 5 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 3745

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Richard Edgar
Examiner
Art Unit 3745

RE



EDWARD K. LOOK
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700

4/8/05